Mounting and Operating Instructions

For

RS485 Remote Control Unit

Dear Customer!

By selecting this product you have decided to use a professional device which guarantees high quality and reliability. We'd like to thank you very much for your confidence and kindly ask you to read the following instructions carefully before commissioning in order to take full advantage of all quality features regarding this product line.

Contents

General Information

Function Description

This external keypad controller is used for the controlling, monitoring and programming of RS485 system products.

This keypad controller comes in elegant extruded aluminum for low profile table desk housing. Due to its compact size, it can be integrated everywhere harmoniously. With this keypad controller, you can control single components as well as complex CCTV systems. Clients within the RS485 BUS are selected via the numeric keypad. Contact with the corresponding client is confirmed by an acoustic signal and additionally in the keypad's info display. Messages such as target address, type of receiver and e.g. camera movements are also shown in the display.

If you are using a matrix switcher, this is selected as central unit. Connected pan/tilt heads or high speed dome cameras are automatically enabled for control by the offset function integrated into the matrix switcher. It is not necessary to additionally address them directly.

This keypad controller comes with a robust joystick with integrated zoom function (effected by turning the joystick). This makes it be possible to control connected pan/tilt head camera stations respectively high speed dome cameras reliably and easily. Just one hand is required for tracking an object with the connected camera unit.

A potential separation with an optic-coupler (potential separator) allows trouble-free data communication on the RS485 control line.

Scope of Delivery

- Remote control unit
- 3 m connection cable
- Power adapter 230/110 VAC to 12 VDC
- Connector box
- Operation manual

Safety Precautions

1. Read these instructions carefully before connecting the components in order to avoid malfunctions and damages caused by improper installation or use.

2. Installation may only be carried out by authorized personnel according to the local safety regulations.

3. Only operate the device with the included power supply adapter and the stated operating voltage.

4. Never use the camera for other purposes except that designated.

5. Repairs and adjustments at the device may only be carried out by authorized personnel.

6. Remove the device from power supply if you do not use it for an extended period of time.

7. Immediately disconnect the device from power supply if any liquid or solid matter should get into the housing and have it checked by your authorized dealer before re-using.

8. Follow the warning notes attached to the device.

9. Only use the device in dry, dust-free and non hazardous locations.

10. Only use the device indoors.

11. In order to avoid internal heat accumulation in the device:

- do not expose the device to direct sunlight.
- keep sufficient distance to direct heat sources.

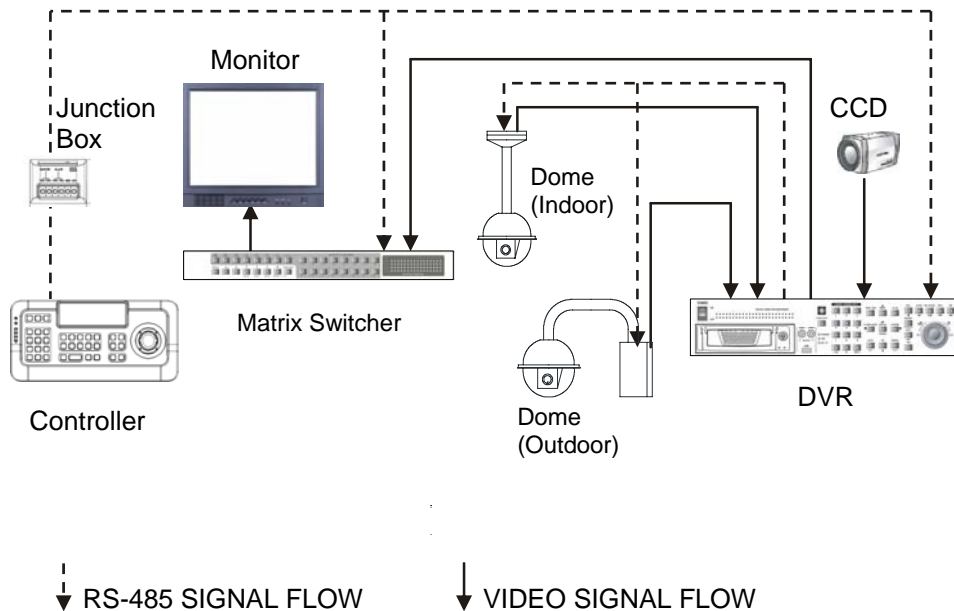# *Connection and Configuration*

System Overview

A. Standard Connect
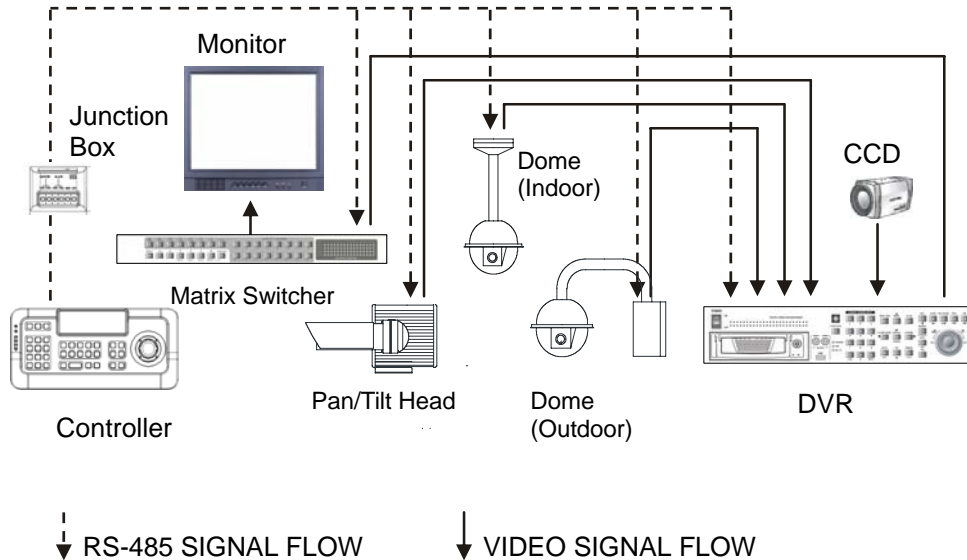
The following devices can be controlled with this keypad controller:

- Telemetry receiver for pan/tilt head
- Telemetry receiver for pan/tilt head with pre-set positions
- High speed pan/tilt head
- High speed dome for indoor use
- High speed dome for outdoor use
- Video matrix switcher (operation via RS485/232C)
- Digital video recorder for High speed domes (operation via RS485)
- The Controller manages directness the High speed domes

B. Control via DVR Connect

↓ RS-485 SIGNAL FLOW   ↓ VIDEO SIGNAL FLOW

The following devices can be controlled with this keypad controller:

- Telemetry receiver for pan/tilt head
- Telemetry receiver for pan/tilt head with pre-set positions
- High speed pan/tilt head
- High speed dome for indoor use
- High speed dome for outdoor use
- Video matrix switcher (operation via RS485/232C)
- Digital video recorder for High speed domes (operation via RS485/232C)
- The Controller uses DVR and indirectness it manages the High speed domes
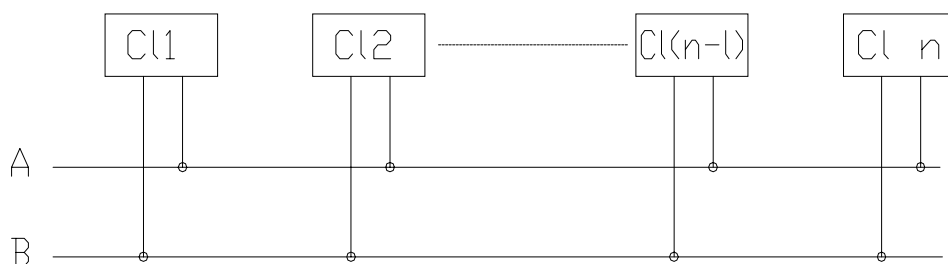
- Standard Connect System Block Diagram
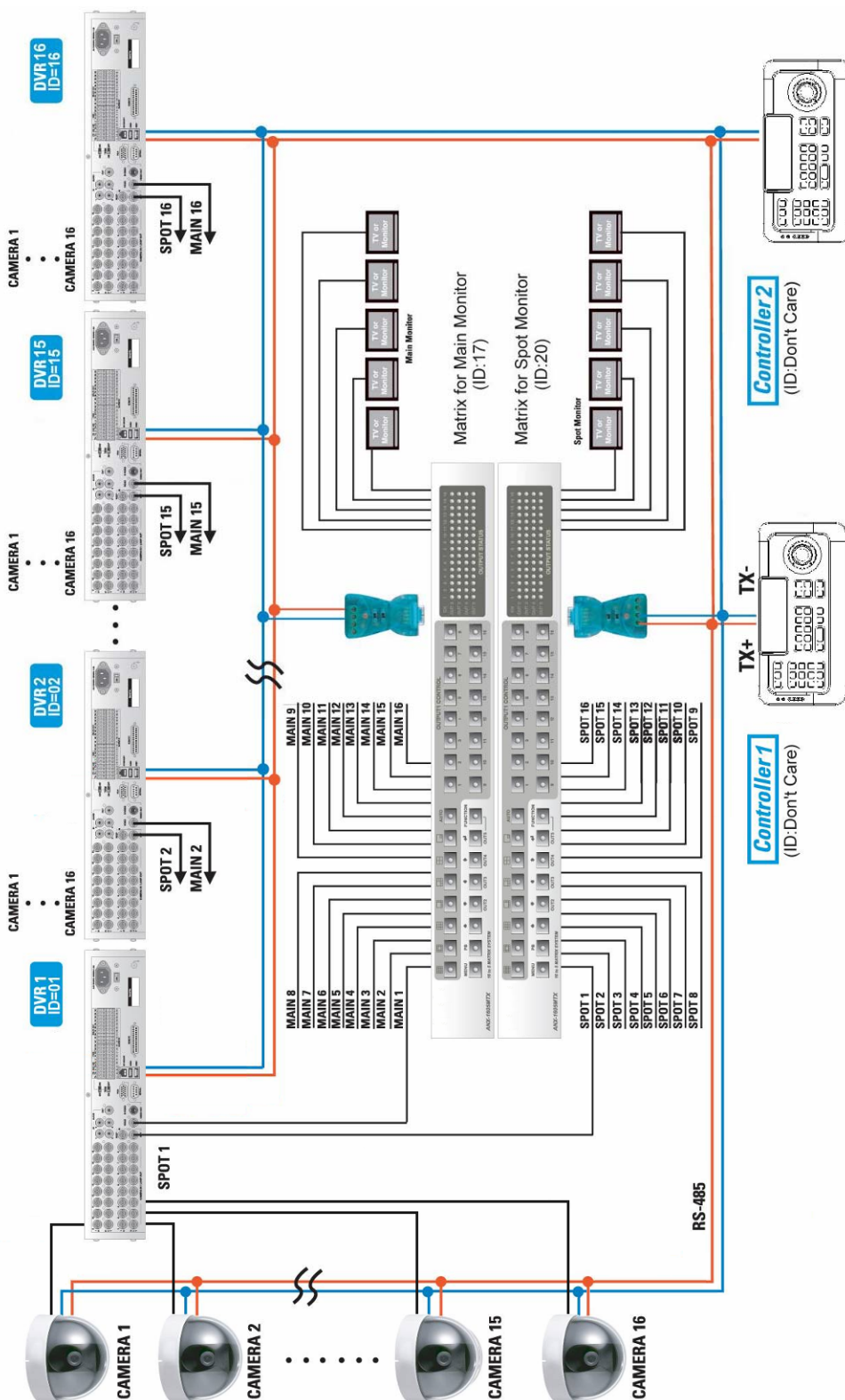
- Control via DVR Connect System Block Diagram
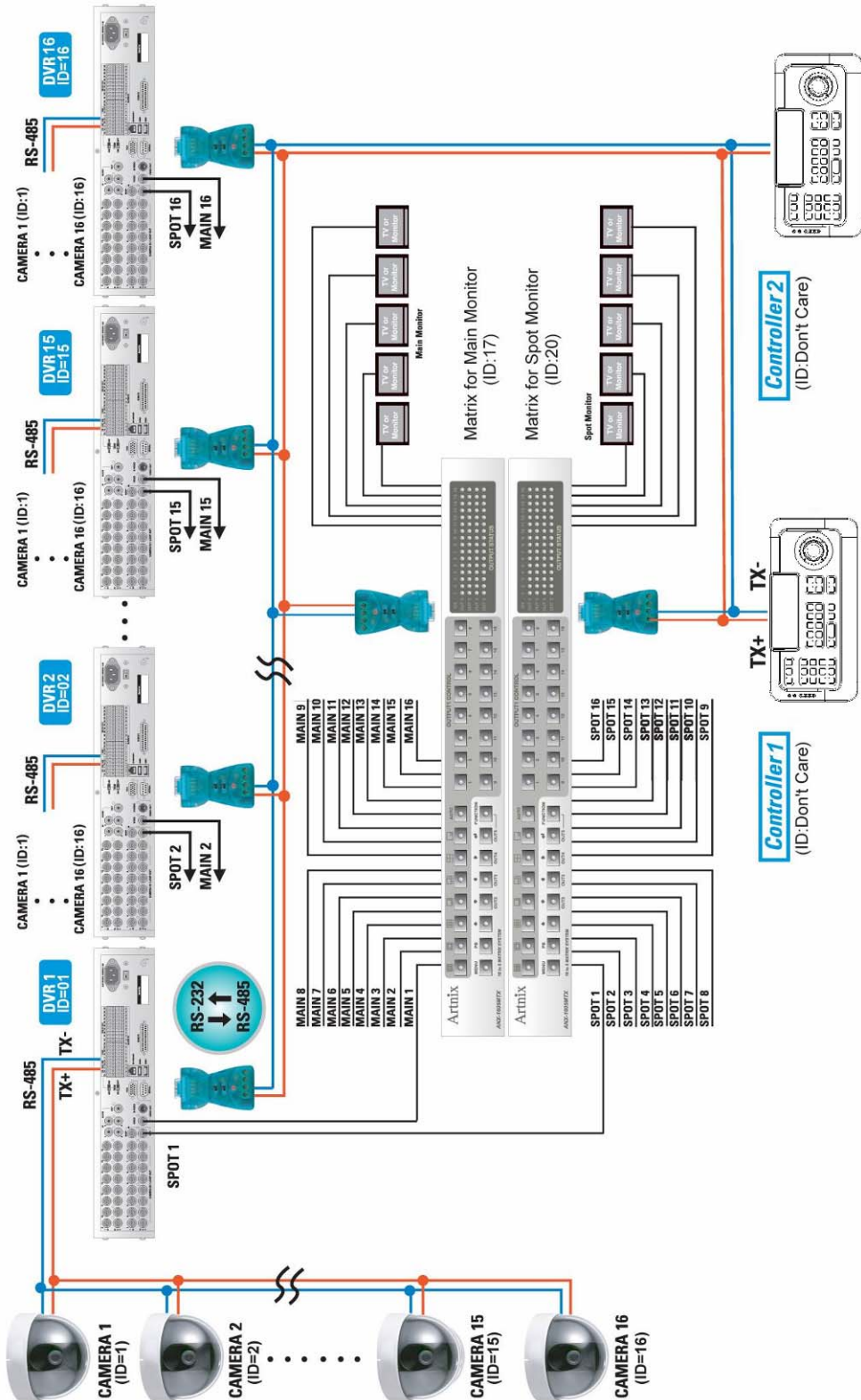
Connecting the Keyboard

Cl = Client

The clients are connected in a parallel way to the RS485 line (conductors A and B). Up to **32 clients with a max. connection** length of 6 m can be connected to the main line.
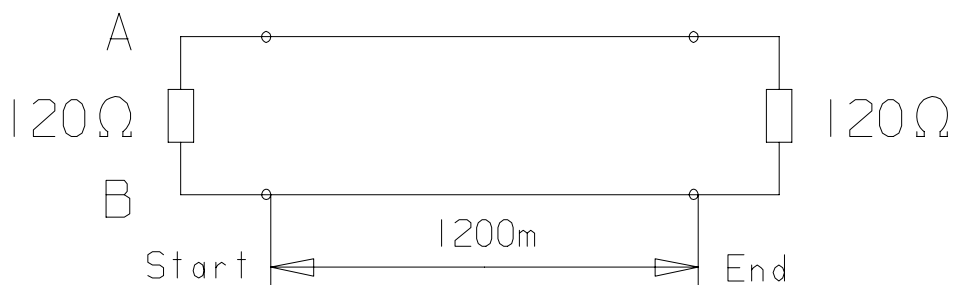
The RS485 line can have a length of up to **1200 m**. A transmission line with 120 Ohm has to be connected to the start and to the end of it in order to avoid signal reflections. The terminating resistor for the RS485 can be connected to each client with a jumper.

9

PACKING DETAIL
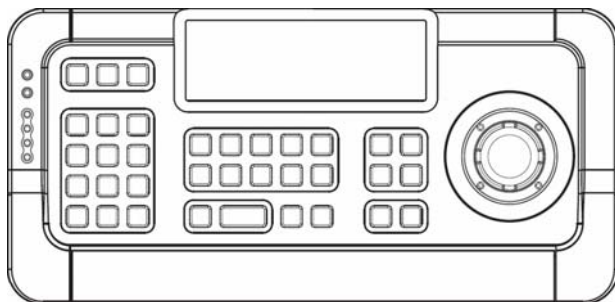
1. CONTROLLER
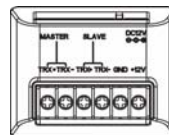
2. JUNCTION BOX

3. MANUAL

4. LAN CABLE

5. AC ADAPTOR
& POWER CORD

- Power Supply

Only operate the device with the power supply adapter (**12 V/DC**) included in the scope of delivery. Connect the power supply adapter to the keyboard's junction plug into the connector box.

The correct power supply is signaled by the LCD display.

- RS485 Interface

Connect the RS485 interface with correct polarity (TRX+ and TRX-) to the junction box.

- LAN cable (RJ45)
Connect the controller to the junction box.
Don't connect the controller to hub and network equipment.

Operation

This keypad controller can control all of RS485 devices. The corresponding key commands for controlling the individual devices are described in this chapter.

Key Assignment

Joy Stick Control
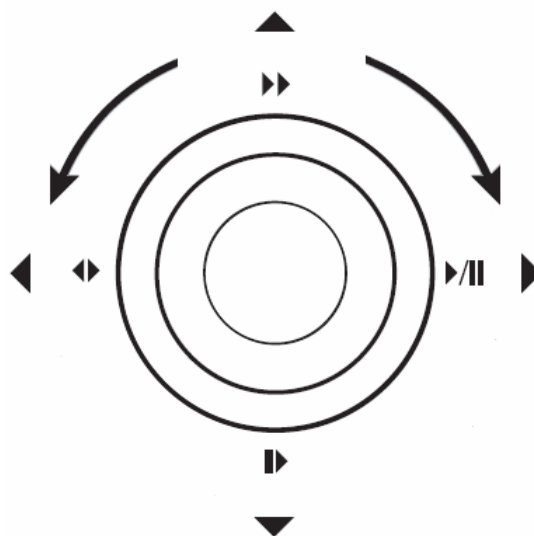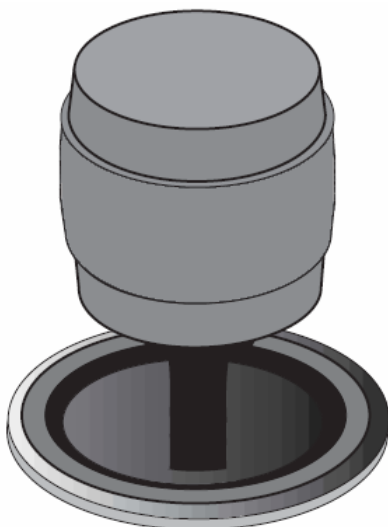
Joy Stick Control	Operation	State	Description
① ↺	(ZOOM-)	PTZ via DVR	PTZ Zoom Control via DVR
	ZOOM-	PTZ	PTZ Zoom Control
② ↻	(ZOOM+)	PTZ via DVR	PTZ Zoom Control via DVR
	ZOOM+	PTZ	PTZ Zoom Control
③ ▲	▲	Menu setup	Upper direction
	FAST	DVR Playback	
④ ▼	▼	Menu setup	Lower direction
	SLOW	DVR Playback	
⑤ ◀	◀	Menu setup	Left direction
	DIR	DVR Playback	Direction
⑥ ▶	▶	Menu setup	Right direction
	PLAY/PAUSE	DVR Playback	

11
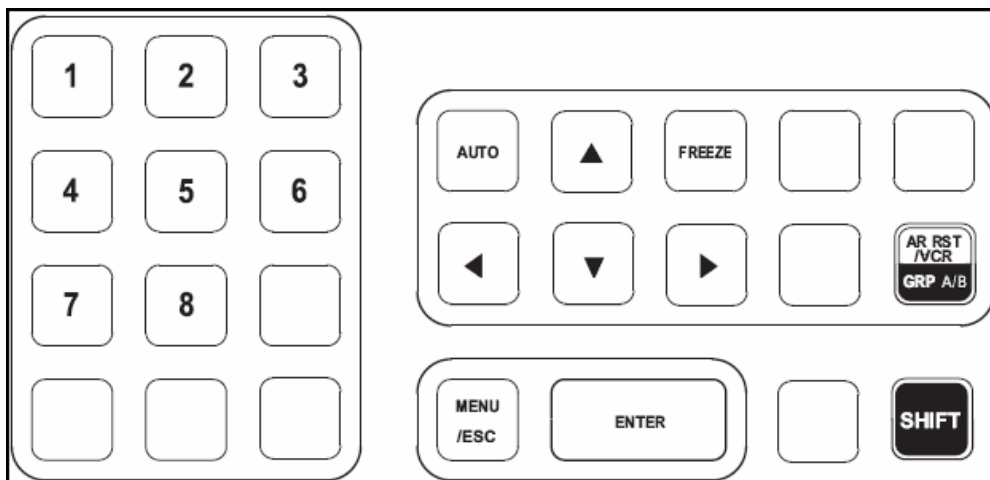
Quad Control Key

- Matrix for 128 camera system (2page Quad)

Controller keys	Operation	Description
① 1~8	1~8	Numeric digit (Channel)
② SPOT/ ESC	MENU/ ESC	Menu screen/ Previous menu
③ ▲	▲	Upper direction
④ ▼	▼	Lower direction
⑤ ◄	◄	Left direction
⑥ ►	►	Right direction
⑦ LV/PB	VCR/ AR RST / GRP A/B	VCR mode/ Release the event signal / Group(page) selection
⑧ STATUS	QUAD/ PIP/ ENTER	Quad mode/ PIP mode/ Enter the next step
⑨ AUTO	AUTO	Auto sequence
⑩ FREEZE	FREEZE	Still image
⑪ SHIFT	SHIFT	Press this button to do the commands of white parts

* White parts: Commands to use the "SHIFT" button

Matrix Control Key
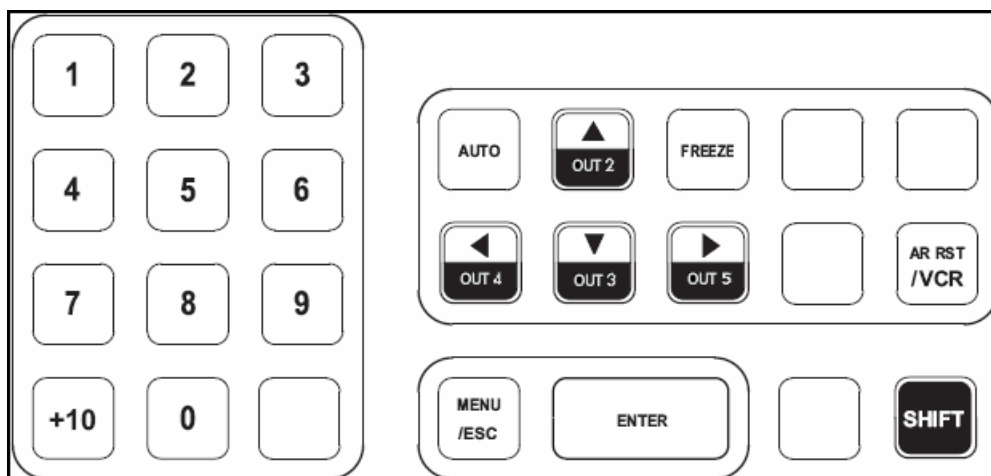
- Matrix for 256 camera system

Controller keys	Operation	Description
① 0~9, +10	0~9, +10	Numeric digit (Channel)
② SPOT/ ESC	MENU/ ESC	Menu screen/ Previous menu
③ ▲	▲/ OUT2	Upper direction/ Monitor 2 output of matrix
④ ▼	▼/ OUT3	Lower direction/ Monitor 3 output of matrix
⑤ ◄	◄/ OUT4	Left direction/ Monitor 4 output of matrix
⑥ ►	►/ OUT5	Right direction/ Monitor 5 output of matrix
⑦ LV/PB	VCR/ AR RST	VCR mode/ Release the event signal
⑧ STATUS	PIP/ ENTER	PIP mode/ Enter the next step
⑨ AUTO	AUTO/ -	Auto sequence/ Decrease of value
⑩ FREEZE	FREEZE/ +	Still image/ Increase of value
⑪ SHIFT	SHIFT	Press this button to do the commands of white parts

13

PTZ via DVR Control Key
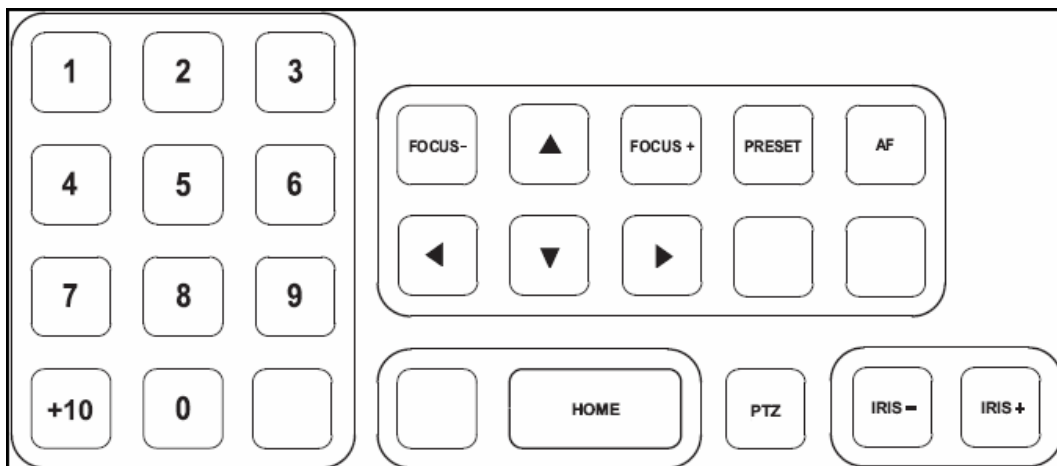
- PTZ via DVR control

Controller key	Operation	Command
① 0~9, +10	0~9, +10	Numeric digit
② (FOCUS-)/ AUTO	FOCUS-	Forward focus
③ (FOCUS+)/ FREEZE	FOCUS+	Backward focus
④ (PRESET)/ SEARCH	PRESET	Preset
⑤ (AF)/ COPY	AUTO FOCUS	Auto focus
⑥ (HOME)/ STATUS	HOME	Move to Home
⑦ (PTZ)/ SETUP	PTZ	DVR PTZ Mode
⑧ (IRIS-)/ FOCUS-	IRIS-	Iris of PTZ camera open
⑨ (IRIS+)/ FOCUS+	IRIS+	Iris of PTZ camera close

PTZ Control Key
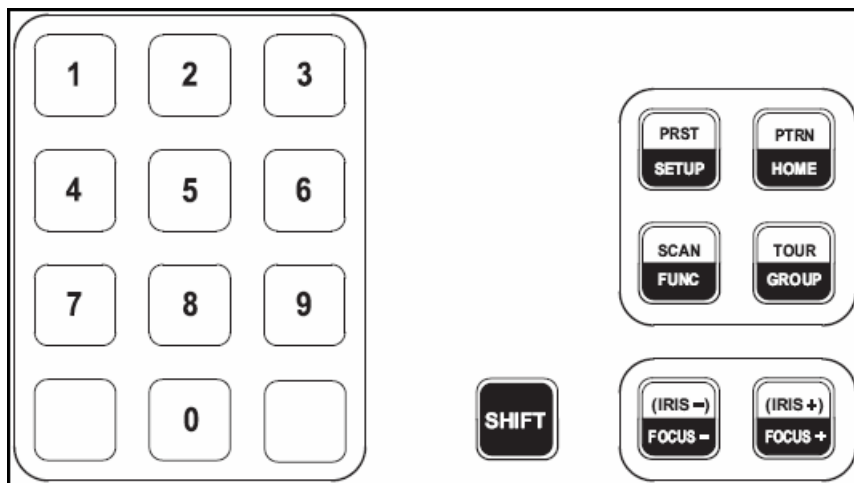
- PTZ via Controller control

Controller key	Operation	Command
① 0~9	0~9	Numeric digit
② PRST	PRESET	Preset
③ (SHIFT + PRST)	SETUP	PTZ menu setup
④ PTRN	PATTERN	Pattern
⑤ (SHIFT + PTRN)	HOME	Move to Home
⑥ SCAN	SCAN	Scan
⑦ (SHIFT + SCAN)	FUNC	Function
⑧ TOUR	TOUR	Tour
⑨ (SHIFT + TOUR)	GROUP	Group
⑩ (IRIS-)	IRIS-	Iris of PTZ camera open
⑪ (IRIS+)	IRIS+	Iris of PTZ camera close
⑫ (SHIFT + IRIS-)	FOCUS-	Forward focus
⑬ (SHIFT + IRIS+)	FOCUS+	Backward focus
⑭ (SHIFT + (IRIS-) (IRIS+))	FOCUS- FOCUS+	Auto focus
⑮ ENTER		

②~⑨ is only PTZ button. It is changed with the PTZ mode of the controller mode.

Controller Menu setup Key
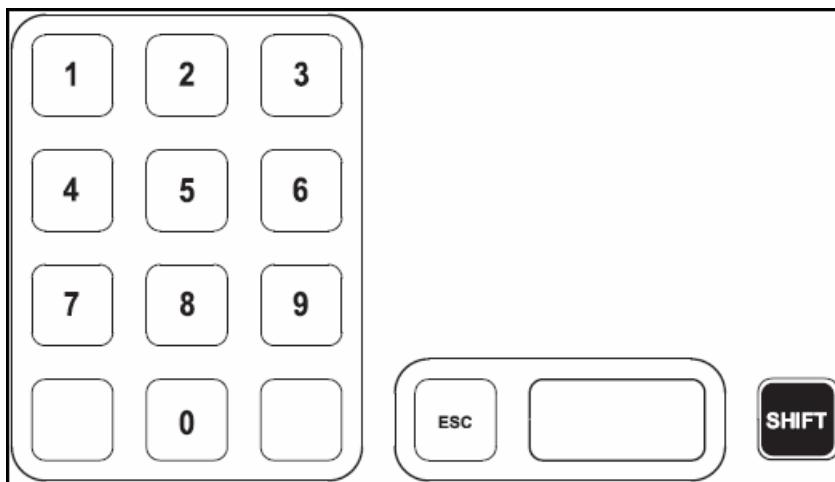
- Controller Menu setup control

| Controller key	Operation	Command
① 0~9	0~9	Numeric digit
② SPOT/ESC	ESC	Exit menu
③ SHIFT	SHIFT	Press this button to do the commands of white parts

NOTE: Monitor output 2~5 of matrix can be displayed only full screen or 4 split screen (QUAD A~D). And if you want to display different channels in each monitor, you have to select channels of different DVR. If you select a channel in same DVR, selected channel will be displayed in all connected monitors.

* **White parts** - This character uses "SHIFT" button.

- Keypad controller

Control keys	Description
① MODE SEL	Mode selection
② ID	ID selection
③ MON	Monitor selection
④ 1~9	Numeric digit (Channel/ ID selection and password input)
⑤ 0/ AUDIO SEL	Numeric digit (Channel/ ID selection and password input)/ Audio selection
⑥ +10	Numeric digit
⑦ CAM/ MULTI	Camera selection/ Multi-screen selection
⑧ AUTO/ - / (F-)/ RELAY4 OFF	Auto sequence mode/ Decrease of value / Focus control in DVR-PTZ mode/ Close the relay 4 in "USER" mode
⑨ FREEZE/ + / (F+)/ RELAY4 ON	Still image/ Increase of value / Focus control in DVR-PTZ mode/ Open the relay 4 in "USER" mode
⑩ MENU/ ▲	Menu screen/ Upper direction
⑪ PIP/ ▼	PIP mode/ Lower direction
⑫ AR RST/ ◄	Release the event signal/ Left direction
⑬ D-ZOOM/ ►	Digital zoom control/ Right direction
⑭ SEARCH/(PRESET)	Search menu/ Preset in DVR-PTZ mode
⑮ COPY/ (AF)	Copy menu/ Auto Focus in DVR-PTZ mode
⑯ REC	Recording/ Stop recording
⑰ LV/PB	Real view mode/ Playback mode
⑱ SPOT/ ESC	Spot mode/ Previous menu
⑲ STATUS/ ENTER	DVR status display/ Enter the next step
⑳ (PTZ)/ SETUP	DVR-PTZ mode/ Controller menu
㉑ SHIFT	Press this button to do the commands of white parts
㉒ PRESET/ SETUP	Preset in CTRL-PTZ mode/ CTRL-PTZ menu
㉓ PATTERN/ HOME	Pattern in CTRL-PTZ mode/ Home in CTRL-PTZ mode
㉔ SCAN/ FUNC	Scan in CTRL-PTZ mode/ Function in CTRL-PTZ mode
㉕ TOUR/ GROUP	Tour in CTRL-PTZ mode/ Group in CTRL-PTZ mode
㉖ (IRIS-)/ FOCUS-	Iris close in CTRL-PTZ or DVR-PTZ mode/ Focus
㉗ (IRIS+)/ FOCUS+	Iris open in CTRL-PTZ or DVR-PTZ mode/ Focus
㉘ FAST	Playback speed up (Up)
㉙ SLOW	Playback speed down (Down)
㉚ PLAY DIR	Change of playback direction (Left)
㉛ PB/ PAUSE	Playback/ Pause (Right)
㉜ ZOOM-	Zoom control in DVR-PTZ or CTRL-PTZ mode
㉝ ZOOM+	Zoom control in DVR-PTZ or CTRL-PTZ mode

Keypad controller key

Only PTZ

Only DVR
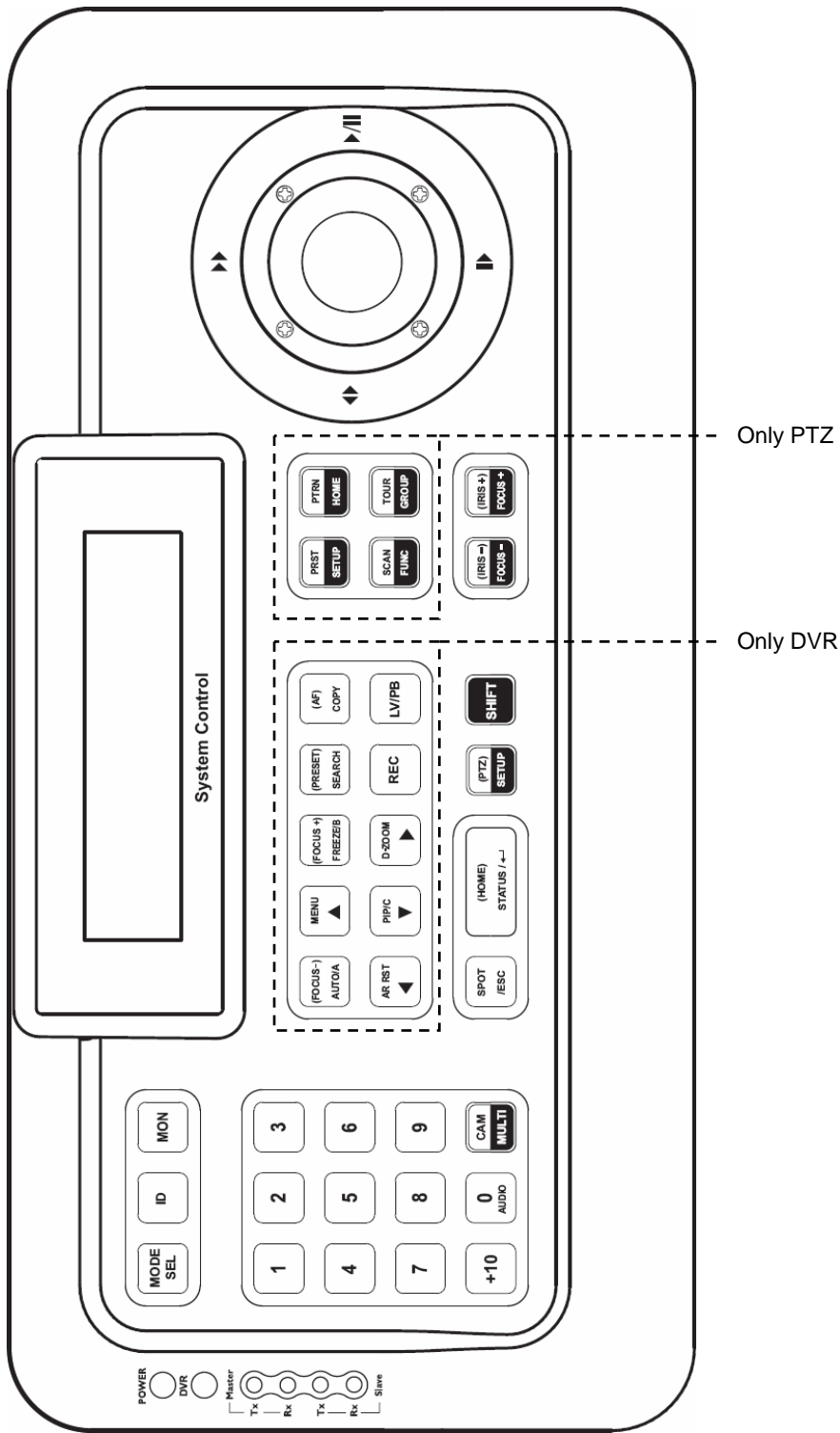
General Operation

Camera selection:
Press the "CAM" button and you can see the cursor next to "SELECT CAMERA" in LCD window. And press the desired camera number button and then press the "CAM" button again.

   NOTE: - Press the "ESC" button to revise the input value.
   - You can use 1~3 digit. The controller will make a "beep" sound and the input value will be erased if you input 4 digits.

Spot camera selection
Press the "CAM" button and then the "SPOT" button to select the spot channel.
And press the desired camera number button and then the "CAM" button again.

   NOTE: - Press the "ESC" button to revise the input value.
   - You can use 1~3 digit. The controller will make a "beep" sound and the input value will be erased if you input 4 digits.
   - If selected camera is PTZ camera, enter the PTZ mode automatically.
   (In case of setting PTZ camera in DVR)

ID selection:
Press the "ID" button and then select the desired number button.
ID means system ID of DVR or Quad/Matrix. (from 01 to 99)
- ID 01~16: DVR 1~16
- ID 17~19: Main monitor 1~3 of Quad/Matrix
- ID 20~22: Spot monitor 1~3 of Quad/Matrix

   NOTE: Use 2 digits when inputting ID.
   For example, if you want ID number "2", you have to input "02".

Controller menu
It changed the set of controller regulation to respect.
(Communication speed/ ID of connected devices)
Press the "SHIFT" button and then the "(PTZ) SETUP" button.
Select the desired value using the joy stick.
Press the "SPOT/ ESC" button to exit this menu. (Saving the revised data automatically)

Control Command

- Keypad controller

Command	Controller key
Controller menu	SHIFT + (PTZ) SETUP
DVR or PTZ selection	MODE SEL
ID selection	ID + NUMBER(01~99)
Display of single camera	CAM + NUMBER + CAM
Display of single spot camera	CAM + SPOT + NUMBER + CAM
Output monitor selection	MON + NUMBER (2:V2 / 3:V3 / 4:V4 / 5:V5) + NUMBER(channel no.) + MON
Output spot monitor selection	MON + SPOT + NUMBER (2:V2 / 3:V3 / 4:V4 / 5:V5) + NUMBER(channel no.) + MON

- DVR control

Command	Controller key
Spot channel selection	SPOT + NUMBER
Live or Playback	LV/PB
Playback direction	PLAY DIR(lower joy stick left)
Playback / Pause	PB/PAUSE(lower joy stick right)
Fast playback	FAST(lower joy stick up)
Slow playback	SLOW(lower joy stick down)
DVR setup menu	MENU
Display digital zoom	D-ZOOM
Auto sequence	AUTO
Still image	FREEZE
DVR system information	STATUS
1~9CH selection	NUMBER
10~16CH selection	+10 + NUMBER
Display of multi-channel	SHIFT + MULTI
Recording start & stop	REC
Search menu	SEARCH
Copy menu	COPY

- PTZ via DVR control

Command	Controller key
PTZ mode on/off	(PTZ)
Iris of PTZ camera open	(IRIS-)
Iris of PTZ camera close	(IRIS+)
PTZ menu setup	SHIFT + MENU
Forward focus	(FOCUS+)
Backward focus	(FOCUS-)
Auto focus	(AF)
Preset & Move	(PRESET)
Speed up	SHIFT + AUTO
Speed down	SHIFT + FREEZE
Forward zoom	Joy stick left turn
Backward zoom	Joy stick right turn

- Key board control for High speed dome

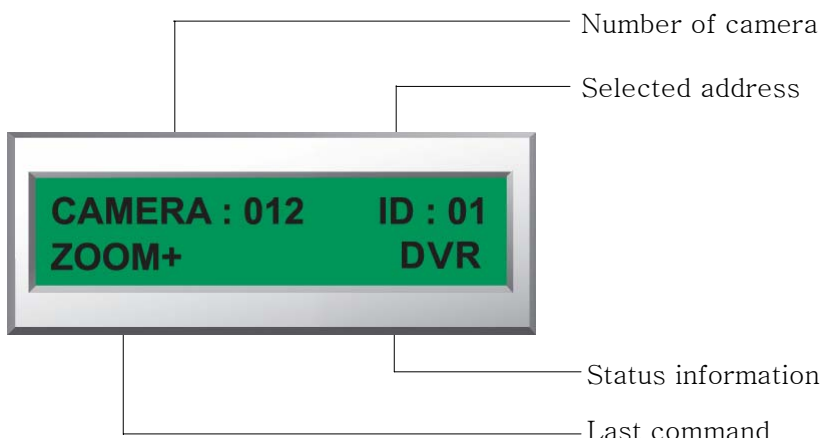| Command	Controller key
Preset	PRST
PTZ menu setup	SETUP (SHIFT + PRST)
Iris of PTZ camera open	(IRIS-)
Iris of PTZ camera close	(IRIS+)
Forward focus	FOCUS+ (SHIFT + IRIS+)
Backward focus	FOCUS- (SHIFT + IRIS-)
Auto focus	FOCUS- + FOCUS+ (SHIFT + (IRIS-)(IRIS+))
Pattern	PTRN
Home	HOME (SHIFT + PTRN)
Scan	SCAN
Function	FUNC (SHIFT + SCAN)
Tour	TOUR
Group	GROUP (SHIFT + TOUR)
Forward zoom	Joy stick left turn
Backward zoom	Joy stick right turn

- Matrix control for 256 camera system

Command	Controller key
ID selection (256 Camera System)	ID + NUMBER(01~16) (Main Monitor:17/ Spot Monitor:20)
Menu / Escape	SPOT/ESC
Enter the next step	ENTER
Move cursor	direction key(▲▼◀▶) / joy stick(▲▼◀▶)
Change Value	AUTO/- , FREEZE/+
VCR / Alarm reset	AR RST
Auto sequence	AUTO/-
Still image	FREEZE/+
Camera Selection of Output 1	NUMBER
Camera Selection of Output 2	MON + 2 + NUMBER
Camera Selection of Output 3	MON + 3 + NUMBER
Camera Selection of Output 4	MON + 4 + NUMBER
Camera Selection of Output 5	MON + 5 + NUMBER

- Matrix control for 128 camera system (2page quad)

Command	Controller key
ID selection (128 Camera System)	ID + NUMBER(01~08) (Main Monitor:17 / Spot Monitor:20)
Menu / Escape	SPOT/ ESC
Enter the next step	ENTER
Move cursor	direction key(▲▼◀▶) / joy stick(▲▼◀▶)
Change Value	ENTER & direction key(◀▶)
VCR / Alarm reset	AR RST
Group A/B selection	SHIFT + LV/PB
Quad / PIP screen	ENTER
Auto sequence	AUTO
Still image	FREEZE

Function of Display

Number of camera

Selected address

```
CAMERA : 012      ID : 01
ZOOM+                DVR
```

Status information

Last command

The following data is displayed:

▪ selected camera number
The currently selected camera number is displayed.
(CAMERA: 001-128/256)

▪ selected address
The currently selected address of the target client gets displayed
(ID: 01 – 99)

- Matrix system for main output of DVRs (ID: 17)
- Matrix system for spot output of DVRs (ID: 20))

▪ last command
The last command gets displayed.

▪ Status information
"MODE SEL" button changes the currently the mode of the controller.

- DVR (DVR mode): The speed dome camera can be controlled by each
                            DVR via this controller.
- PTZ (PTZ mode): The speed dome camera can be controlled this
                            controller.

Operating of Display

```
SYSTEM CONTROL
FIRMWARE VER 1.0
```

After power input it is a first screen.

```
CAMERA:001 ID:01
■              DVR
```

It is a condition which is set in initial DVR mode.
Left DVR LED comes to light.
PTZ button can not use.

```
CAMERA:001 ID:01
■              PTZ
```

Press the MODE SEL button make DVR mode change PTZ mode and left DVR LED off.

```
PASSWORD:
■
```

MODE SEL button when during 2 seconds it presses becomes the password input hold status.
Default value is 0000 & enter button.

```
CAMERA:001 ID:01
SELECT ID:■
```

Presses the ID button and presses 2 place numbers from in the number button and the monitor image is changed with correspondence DVR.
Becomes the DVR mode with automatic movement and the CAMERA number comes to erase.

```
CAMERA:001 ID:01
SELECT CAM:■
```

Presses the CAM button and presses 3 place numbers from in the number button and the monitor image is changed in corresponding Channel.

```
CAMERA:001 ID:01
MON:2  CAM:■
```

Presses the MON button and 2~5 until it presses 1 place number from in the number button and the DVR selection menu comes out and when 0~9 until it presses 3 place numbers from in the number button and the corresponding monitor is changed with corresponding camera image.

24

Menu setting of Display

SYSTEM SETUP

DVR SETUP
    1. SPEED   1200   2400   4800   `9600`   19200   38400
    2. ID LINK MTXM
        ID   `17`   18   19
        CH   8   `16`
    3. ID LINK MTXS
        ID   `20`   21   22
        CH   8   `16`
    4. ID LINK DVR
        ID   01   02   ~   99
        CH   4   8   9   `16`
    5. ID LINK TEST

PTZ SETUP
    1. SPEED   1200   2400   4800   `9600`   19200   38400
    2. MODEL   `NONE`   SPD   SRX–100B
                 VC–C4R   SD–290   SCC–643
                 PELCO–D   DSC–230   CS–854
                 DMP23   LPT–A100L   PELCO–P
                 BOSCH   TK–C655/C676 SK–D106
                 EZ   PCS–SERIES
    3. CH   `000`   001   ~   256
      ID   `001`   001   ~   999
    4. INFORMATION
        CH   `000`
        SUM   `000`

CTRL SETUP
    1. BUZZER   `ON`   OFF
    2. PASSWORD   ON   `OFF`
        MAKE PASSWORD
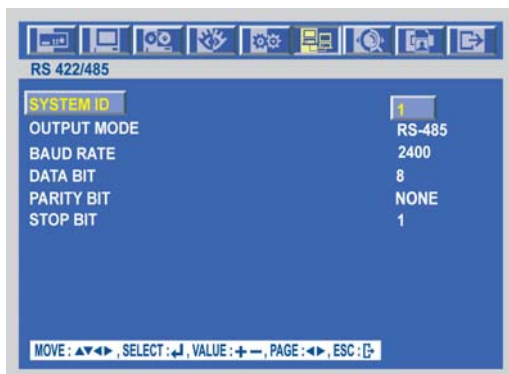   3. F/W UPGRADE
    4. INITIALIZE

A. General installation

Menu Setting
Setting MENUs among DVRs and PTZ Cameras

1. DVR MENU Setting
SYSTEM ID & OUTPUT MODE Setting of RS-485
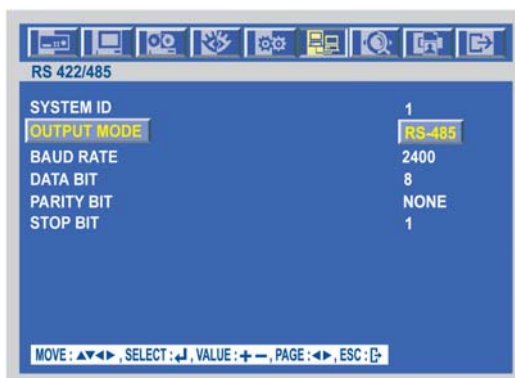
The SYSTEM ID sets the DVR especially different. **Set up ID (1-16)**
The Baud the rate sets with 9600. (Default 115200)

2. MATRIX & QUAD MENU Setting
There is not a necessity which it will change
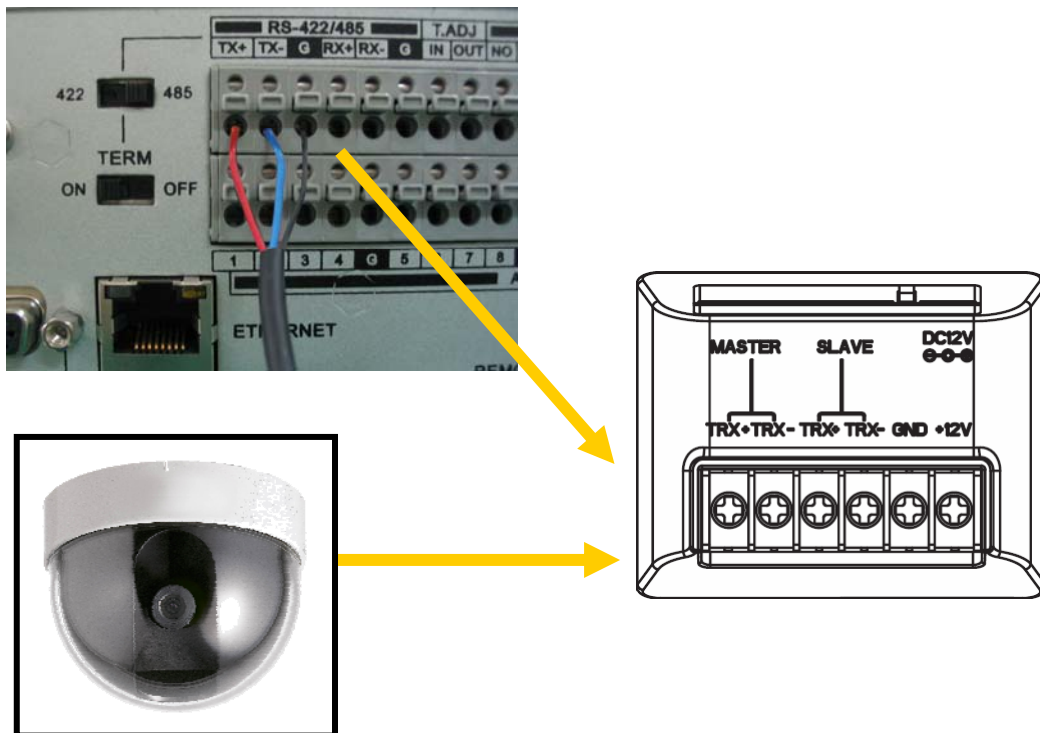
Default speed 9600
Default ID 17

3. External Keyboard MENU Setting

The PTZ set the model name and the speed and the ID of the camera.
The PTZ set the Channel number where the video cable of the camera is connected.
(Channel number same to CAM + number + CAM)

Connection of RS485

Connect RS485 of DVR and PTZ camera at JUNCTION BOX.
Not use RS232 of DVR.

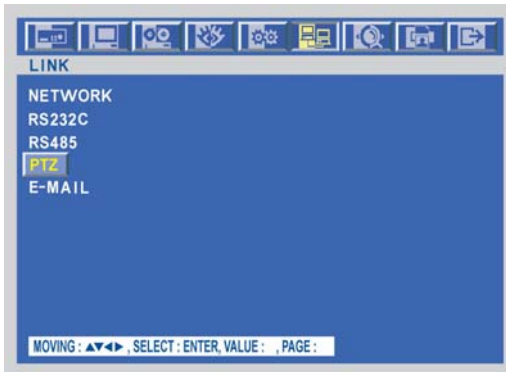The junction box and the controller connect with the RJ45 cable.

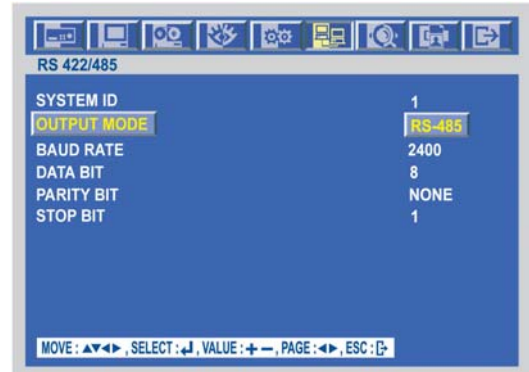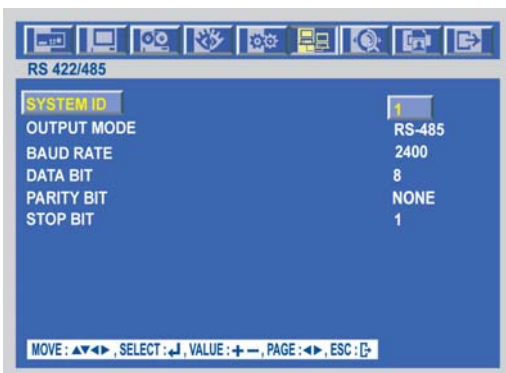## B. Control via DVR installation

Menu Setting
I. Setting MENUs among DVRs and PTZ Cameras

1. DVR MENU Setting
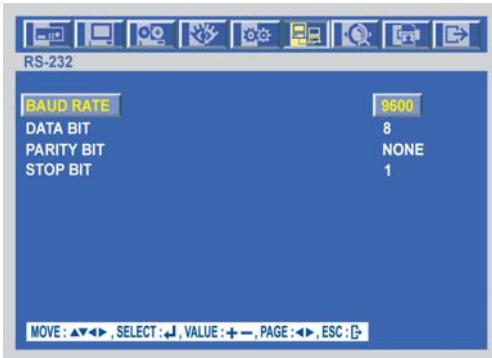#### 1) PTZ Camera Type, PTZ Camera ID & Speed Setting of RS-485

2) SYSTEM ID & OUTPUT MODE Setting of RS-485

Set up ID(1-16), MODEL and BAUD RATE of the connected PTZ camera PTZ camera to connect and control a PTZ camera with DVR. And you have to set the OUTPUT MODE to RS-485.

II. MENU Setting among DVRs, Matrix and External Keyboard

1. DVR MENU Setting
BAUD RATE Setting of RS-232

2. MATRIX or QUAD MENU Setting
There is not a necessity which it will change

Default speed 9600
Default ID 17

3. External Keyboard MENU Setting
There is not a necessity which it will change

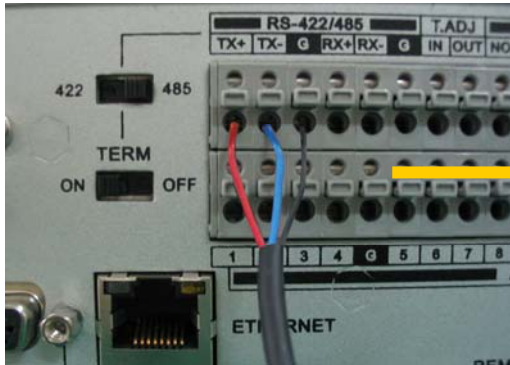If DVR Channel is 4, 8 and 9 must change channel of correspondence id.

> **Keyboard Controller** BAUD RATE Set.
> 1) **Press the SHIFT and ID/CONTROLLER MENU key.**
> 2) **Select the COMM SPEED as 9600 using joy stick of Keyboard.**
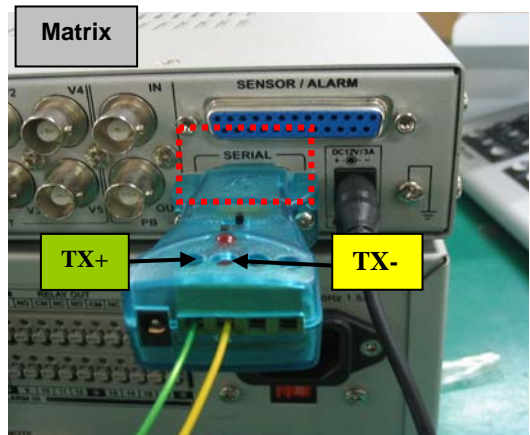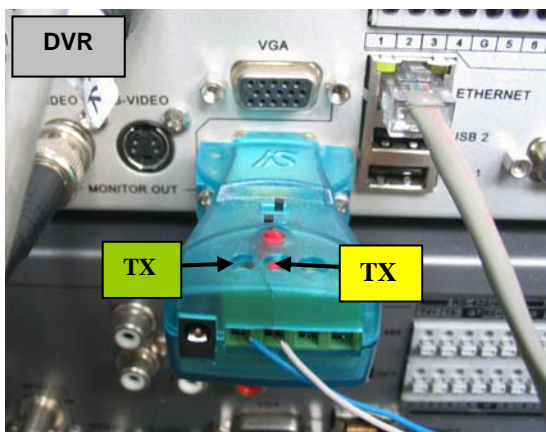> 3) **Default Value of BAUD RATE is 9600.**

Connection of RS485

Connection of Control Signal
1. Connecting the PTZ Camera with DVR:

Connect the RS422/485 cable of PTZ camera with the terminal block of DVR.

2. Connecting a DVR or a Matrix to a External keypad controller:

1. RS-232C Connection
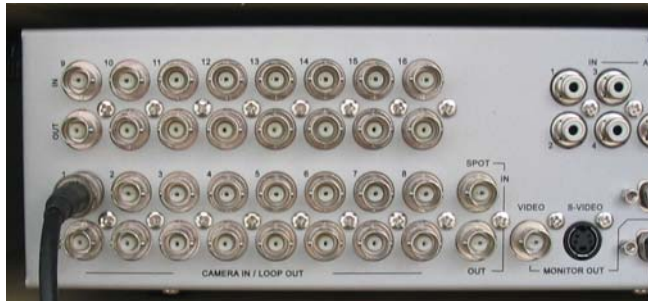(The SERIAL port of DVR or Matrix can connect RS-232C.)
2. RS-485 Connection
Connect the 485CONVERTER (RS-485 to RS-232C converter) to SERIAL port of DVR
to connect with DVR.
3. Connect the + line of RS-485 to the TRX+ of 485CONVERTER
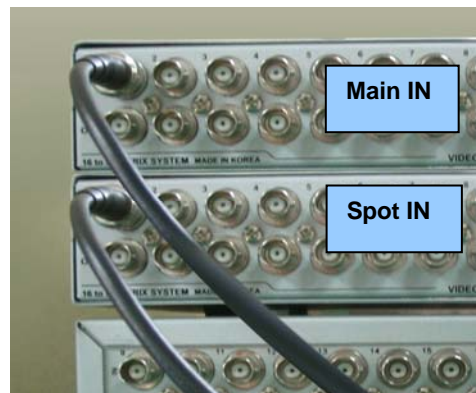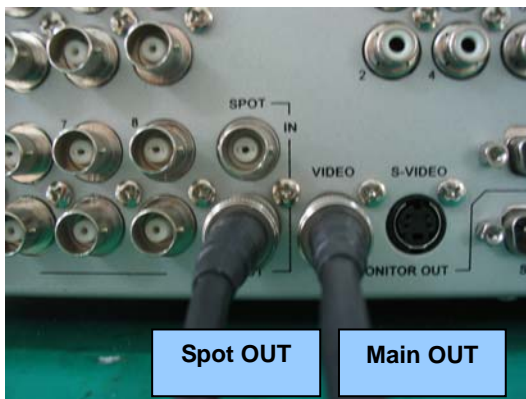and the – line of RS-485 to the TRX- of 485CONVERTER.

Connection of Video

1. Connecting the PTZ Camera with DVR:

Connect the VIDEO OUTPUT of PTZ Camera to CAMERA IN of DVR.

2. Connecting the DVR with Matrix:

Spot OUT   Main OUT

Main IN

Spot IN

Connect the BNC connecter of MONITOR OUTPUT to CAMERA IN of the Matrix for the Monitor and the BNC connecter of SPOT OUTPUT to CAMERA IN of the Matrix for the SPOT Monitor.

3. Connecting a Monitor to a Matrix:
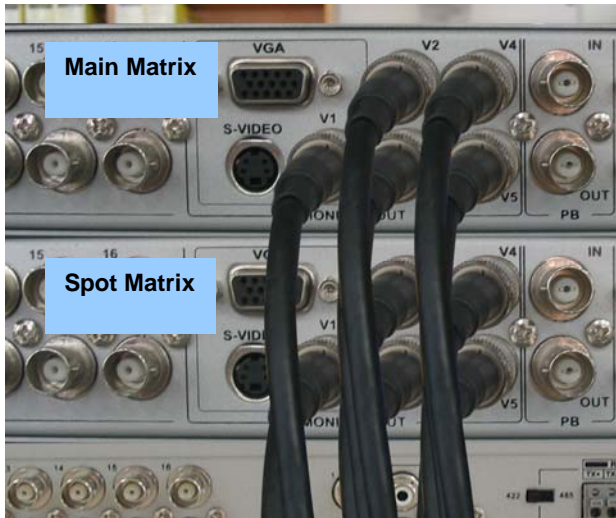
Main monitor

Spot monitor

Exhibit

Trouble shooting

Please contact your authorized dealer with an exact failure description if none of the below mentioned remedy measures fixes your problem.

Error Description	Cause
No function	- Not plugged in - Connects plug of the keyboard controller not connected - Incorrectly switched 120 Ohm termination resistor
No communication via RS485 interface	- Incorrectly assigned device address of the client - Fault in the client's power supply - Missing or incorrect cable - Incorrectly switched 120 Ohm termination resistor
System crash	- If twisted pair line is not shielded, interference may occur - Moving loads are plugged incorrectly - Power supply of one (several) clients is defective

Technical Specifications

Application	RS485 transmitter for selection and control of a maximum of 100 RS485 clients with an unlimited number of control commands
Joystick	Yes (pan/tilt move and zoom wide/ tele control)
Display	16 characters x 2 line LCD
Optic coupler	For RS485
Housing Connection cord	Table desk housing 6 cores, 5m long, pre-assembled with Western plug
Operating voltage	12V DC
Consumption	3 W
Addressing	Adjustable via jumper or software
Output	RS485 interface / BUSTRONIC protocol
Operating temperature	-10° C up to + 55° C
Air humidity	< 90 %
IP rating / class	IP40 / Class III
MTBF	80,000 hours
Dimensions (W x H x D)	342 x 165 x 96.8 mm
Housing color	ABS / Black
Accessories (included)	operating instructions, Western socket

Some Words on Excess-Voltage

Excess-voltage is the most common reason for defects in electronic equipment. That's why the additional safety precautions for the transmission devices mentioned in these instructions are so important. These safety precautions avoid or at least minimize short-lived voltage pulses (transients) on the data line.

Causes for excess-voltage:

direct strikes by flashes of lightning
indirect lightning strikes in distances of up to several kilometers
switching acts in the energy net
disturbances by house internal switching acts

The shielded line has to be conductive along the whole length of the connection dis- tance and has to be grounded at least at both ends.
Only a shield on both sides can reduce double reaction. The grounding of the shield has to be carried out with impedance as low as possible.
This avoids spikes of several 1,000 V caused by bad shield connection.

If wires go from one building to another their wire shields must be able to cope with high impulse currents for short periods of time.
This can only work if the shield cross section is large enough. This can not be accom- plished by foil sheets alone.
Multiple-shielded cables can reduce – but not avoid – residual interference on the signal leads.
Therefore, the use of additional charge eliminators is indispensable in most cases.
We recommend information technology devices!

Maintenance and Care

Disconnect this controller from power supply before starting to clean it. For reasons of electrical safety never clean the keyboard with water or other liquid matters and never put the device underwater. Only use a soft dry cloth for cleaning this controller.
A cleaning of this controller's interior may only be carried out by authorized personnel. Make sure to include these instructions when handing the unit over to third parties.

Technical Support

Please contact the authorized dealer.

plettac Security UK Ltd

Unit 39
Sir Frank Whittle Business Centre
Great Central Way
Rugby
CV21 3XH

Tel :- 0844 800 1725
Fax :- 01788 544 549

Web Site ww.plettac-security.co.uk